FIG.1

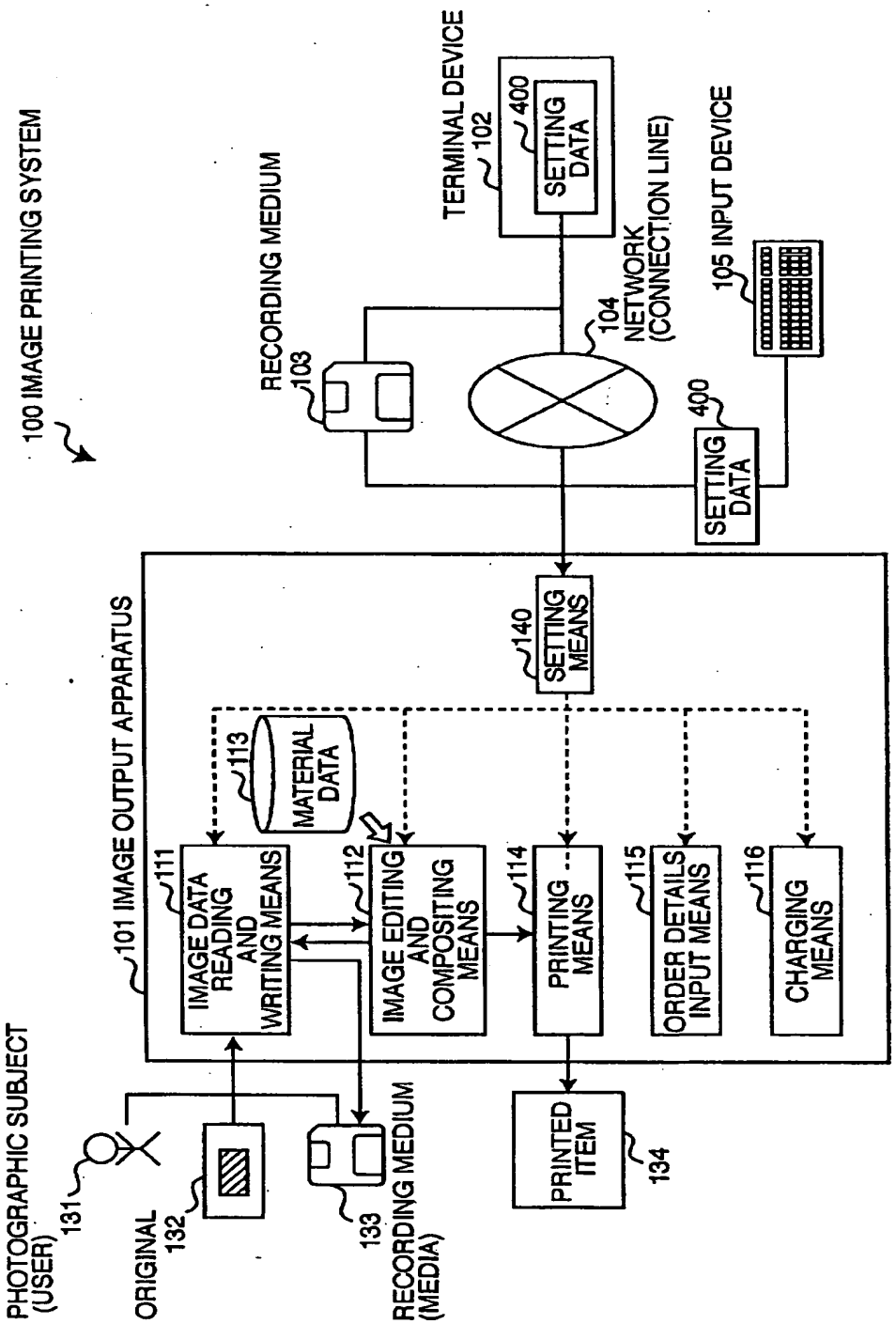
100 IMAGE PRINTING SYSTEM
TERMINAL DEVICE
102
400
SETTING DATA
RECORDING MEDIUM
103
104
NETWORK
(CONNECTION LINE)
105 INPUT DEVICE
400
SETTING DATA
140
SETTING MEANS
101 IMAGE OUTPUT APPARATUS
113
MATERIAL DATA
111
IMAGE DATA READING AND WRITING MEANS
112
IMAGE EDITING AND COMPOSITING MEANS
114
PRINTING MEANS
115
ORDER DETAILS INPUT MEANS
116
CHARGING MEANS
PHOTOGRAPHIC SUBJECT
(USER)
131
ORIGINAL
132
133
RECORDING MEDIUM
(MEDIA)
PRINTED ITEM
134

FIG.2

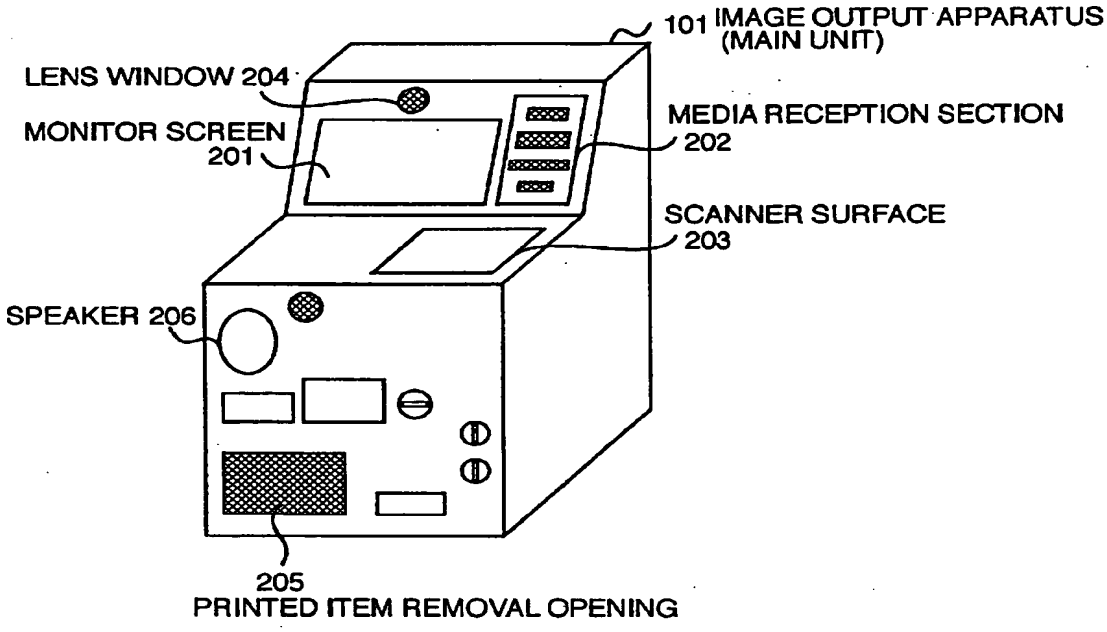
101 IMAGE OUTPUT APPARATUS (MAIN UNIT)
LENS WINDOW 204
MONITOR SCREEN 201
MEDIA RECEPTION SECTION 202
SCANNER SURFACE 203
SPEAKER 206
205 PRINTED ITEM REMOVAL OPENING

FIG.3

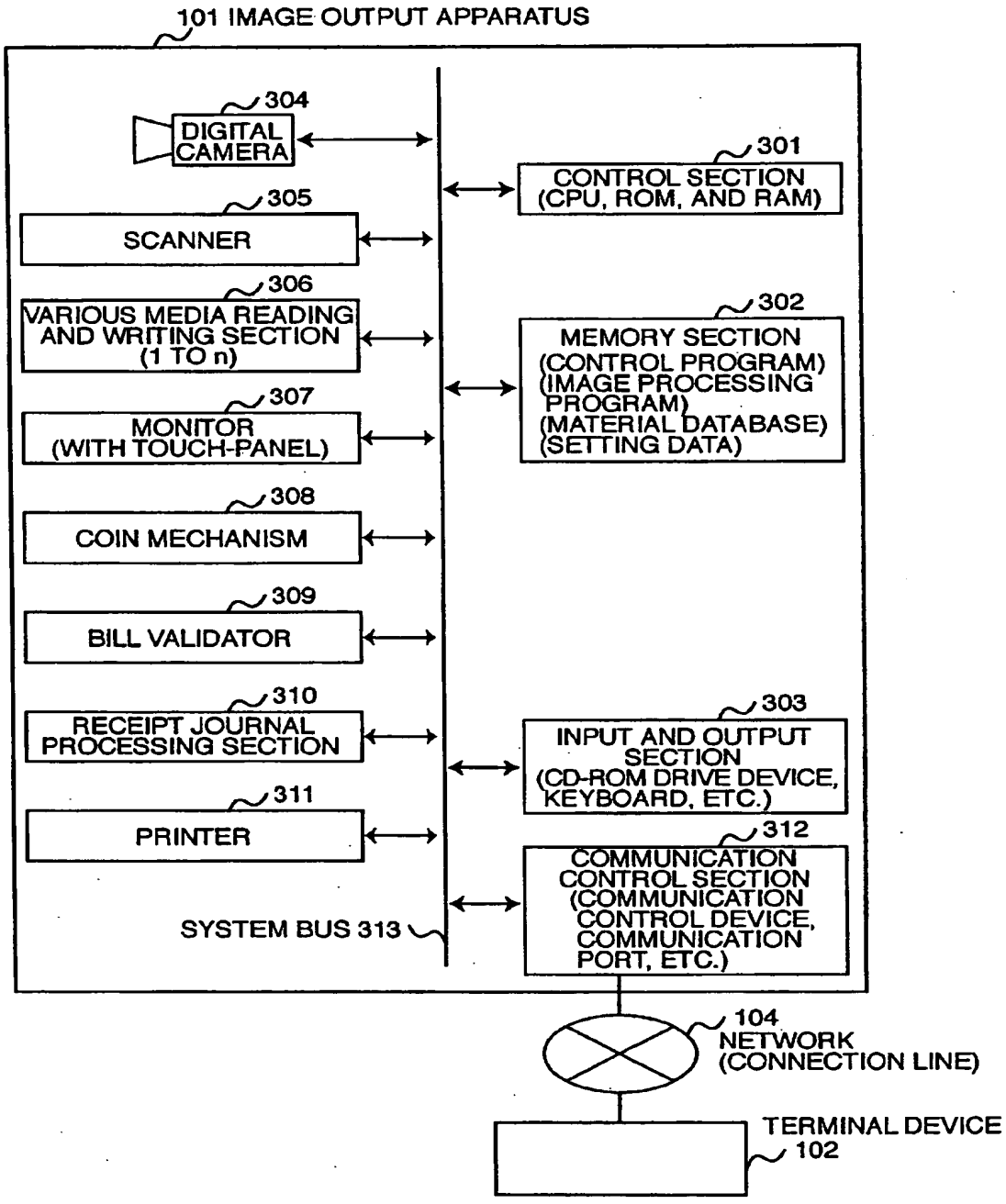
101 IMAGE OUTPUT APPARATUS
304
DIGITAL CAMERA
305
SCANNER
306
VARIOUS MEDIA READING AND WRITING SECTION (1 TO n)
307
MONITOR (WITH TOUCH-PANEL)
308
COIN MECHANISM
309
BILL VALIDATOR
310
RECEIPT JOURNAL PROCESSING SECTION
311
PRINTER
SYSTEM BUS 313
301
CONTROL SECTION (CPU, ROM, AND RAM)
302
MEMORY SECTION (CONTROL PROGRAM) (IMAGE PROCESSING PROGRAM) (MATERIAL DATABASE) (SETTING DATA)
303
INPUT AND OUTPUT SECTION (CD-ROM DRIVE DEVICE, KEYBOARD, ETC.)
312
COMMUNICATION CONTROL SECTION (COMMUNICATION CONTROL DEVICE, COMMUNICATION PORT, ETC.)
104
NETWORK (CONNECTION LINE)
TERMINAL DEVICE
102

FIG.4

400 SETTING DATA

	401 SETTING ITEM	402 SETTING DETAILS
411	USE OF EXIF INFORMATION	USE/DO NOT USE
412	SUBJECTS OF OPERATIONAL INSTRUCTION BY BATCH BUTTON	ALL IMAGES/ DISPLAYED IMAGE ONLY
413	TAX RATE	5%
414	TAXATION METHOD	TAX-INCLUSIVE/TAX-EXCLUSIVE
415	TAX AMOUNT DISPLAY	DISPLAY ON SCREEN/ DO NOT DISPLAY ON SCREEN
	⋮	⋮
416	TEMPORARY DISPLAY OF EXIF REDUCED IMAGE DATA	DISPLAY TEMPORARILY/ DO NOT DISPLAY TEMPORARILY
417	MONITOR RESOLUTION	1280×1024 (5:4) /1024×768 (4:3)
418	IMAGE CORRECTION PATTERN	IMAGE CORRECTION VALUES (SUNSET, NIGHT VIEW, PORTRAIT, INDOORS, ETC.)
	⋮	⋮

FIG.5

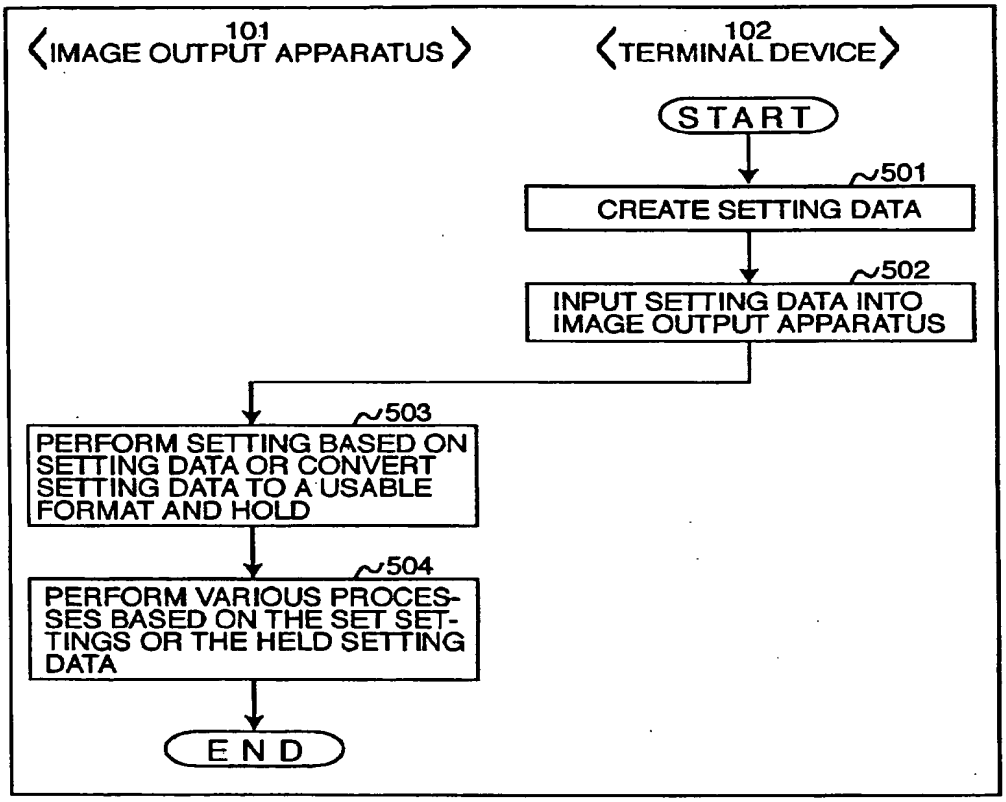
101
〈IMAGE OUTPUT APPARATUS〉
102
〈TERMINAL DEVICE〉
START
501
CREATE SETTING DATA
502
INPUT SETTING DATA INTO IMAGE OUTPUT APPARATUS
503
PERFORM SETTING BASED ON SETTING DATA OR CONVERT SETTING DATA TO A USABLE FORMAT AND HOLD
504
PERFORM VARIOUS PROCESSES BASED ON THE SET SETTINGS OR THE HELD SETTING DATA
END

FIG.6

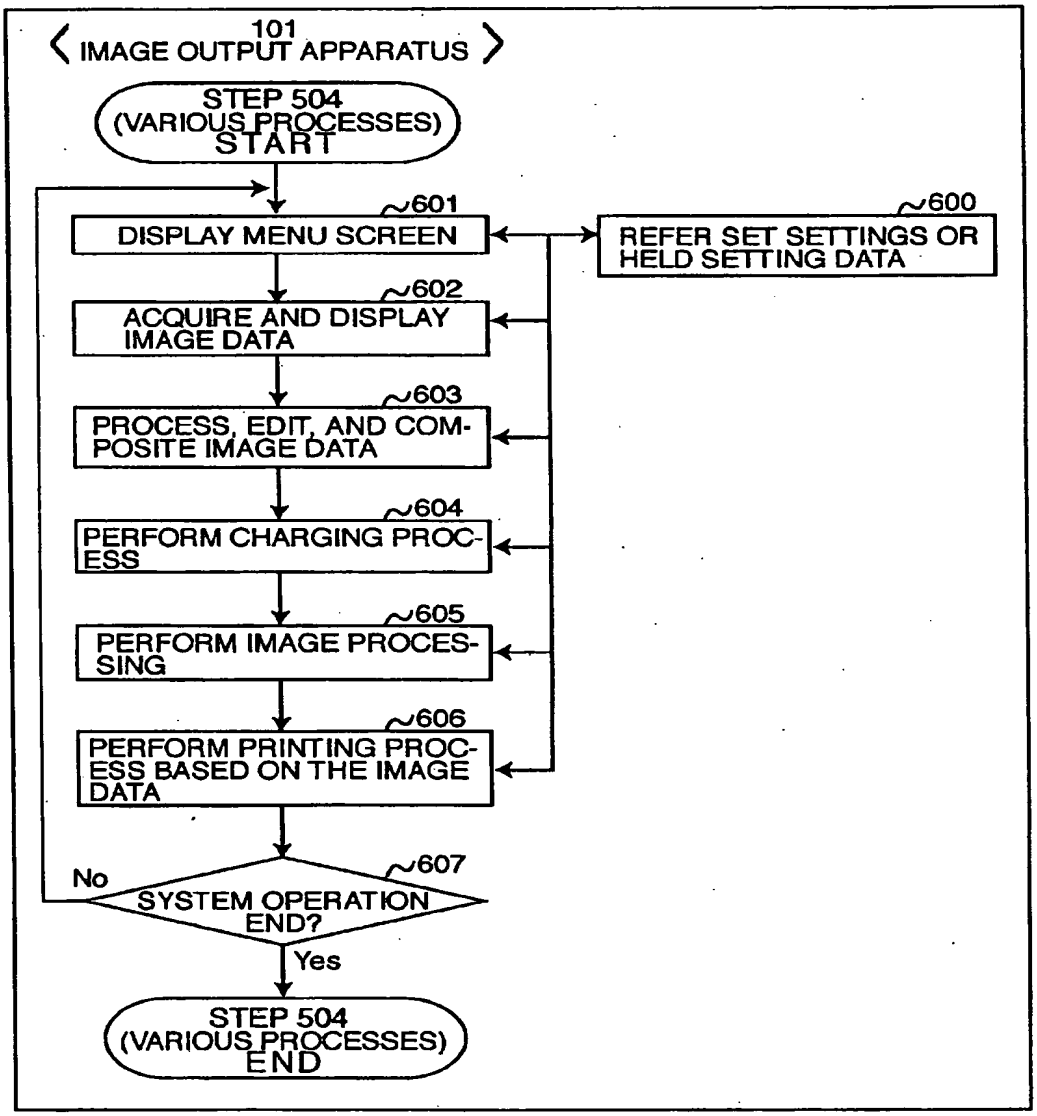
101
IMAGE OUTPUT APPARATUS
STEP 504
(VARIOUS PROCESSES)
START
601
DISPLAY MENU SCREEN
600
REFER SET SETTINGS OR HELD SETTING DATA
602
ACQUIRE AND DISPLAY IMAGE DATA
603
PROCESS, EDIT, AND COMPOSITE IMAGE DATA
604
PERFORM CHARGING PROCESS
605
PERFORM IMAGE PROCESSING
606
PERFORM PRINTING PROCESS BASED ON THE IMAGE DATA
607
No
SYSTEM OPERATION END?
Yes
STEP 504
(VARIOUS PROCESSES)
END

FIG.7

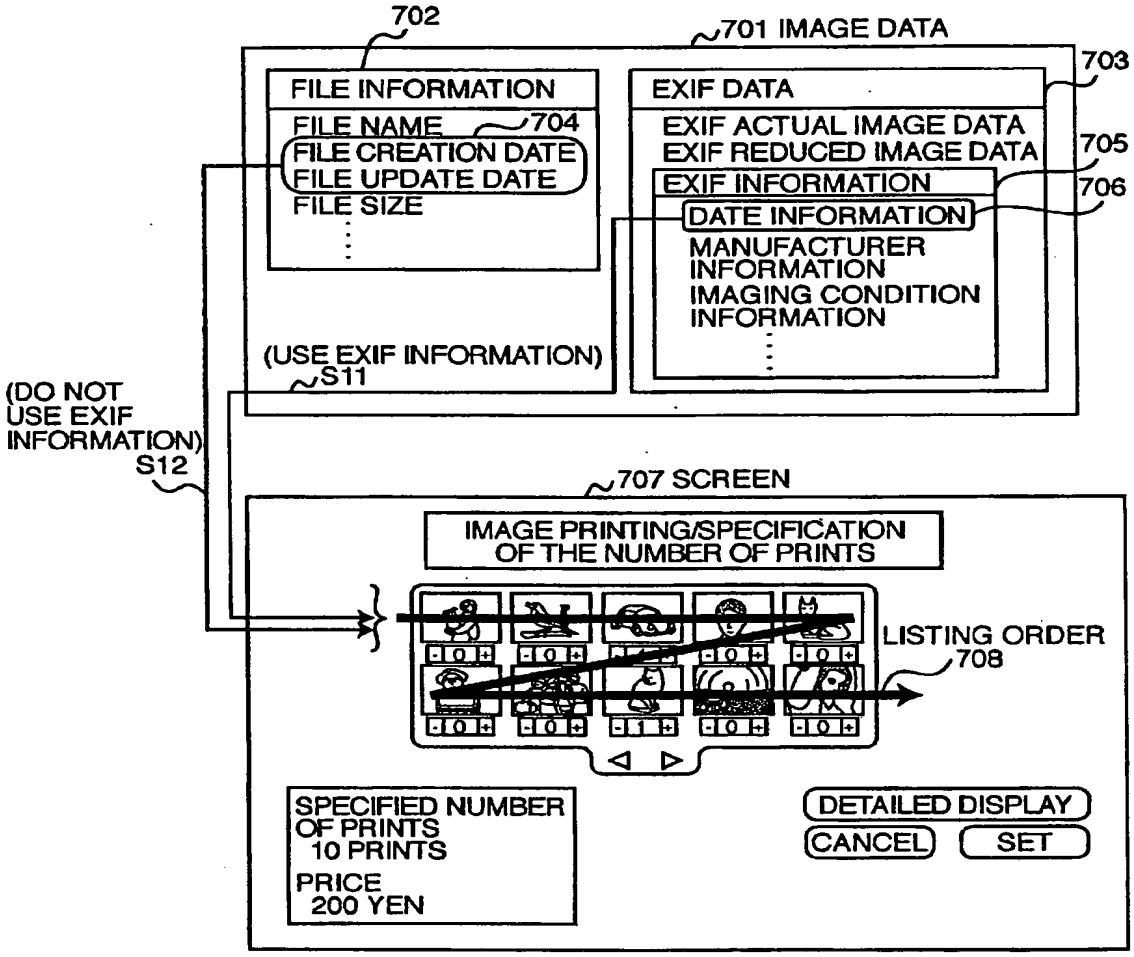
702
701 IMAGE DATA
703
FILE INFORMATION
FILE NAME
704
FILE CREATION DATE
FILE UPDATE DATE
FILE SIZE
EXIF DATA
EXIF ACTUAL IMAGE DATA
EXIF REDUCED IMAGE DATA
705
EXIF INFORMATION
706
DATE INFORMATION
MANUFACTURER INFORMATION
IMAGING CONDITION INFORMATION
(USE EXIF INFORMATION)
S11
(DO NOT USE EXIF INFORMATION)
S12
707 SCREEN
IMAGE PRINTING/SPECIFICATION OF THE NUMBER OF PRINTS
LISTING ORDER
708
SPECIFIED NUMBER OF PRINTS
10 PRINTS
PRICE
200 YEN
DETAILED DISPLAY
CANCEL
SET

FIG.8

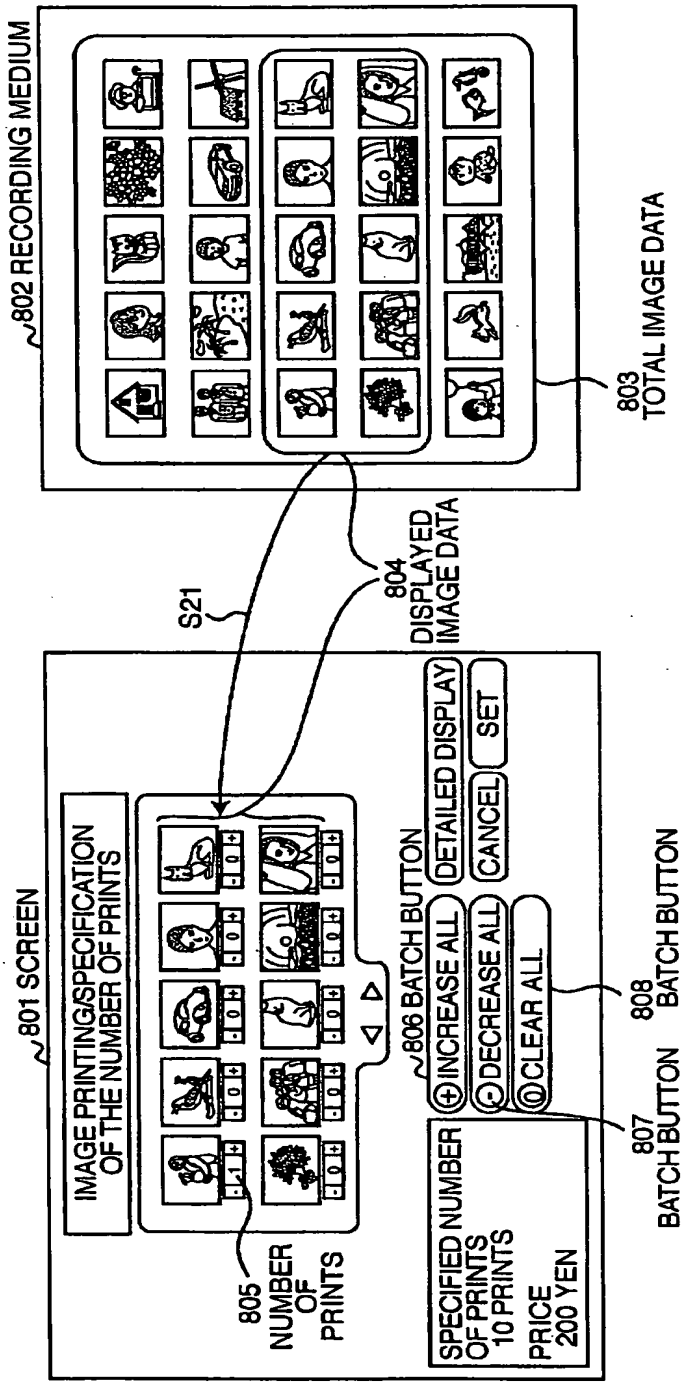
802 RECORDING MEDIUM
803 TOTAL IMAGE DATA
S21
804 DISPLAYED IMAGE DATA
801 SCREEN
IMAGE PRINTING/SPECIFICATION OF THE NUMBER OF PRINTS
806 BATCH BUTTON
DETAILED DISPLAY
CANCEL
SET
INCREASE ALL
DECREASE ALL
CLEAR ALL
808 BATCH BUTTON
807 BATCH BUTTON
805 NUMBER OF PRINTS
SPECIFIED NUMBER OF PRINTS 10 PRINTS
PRICE 200 YEN

FIG.9

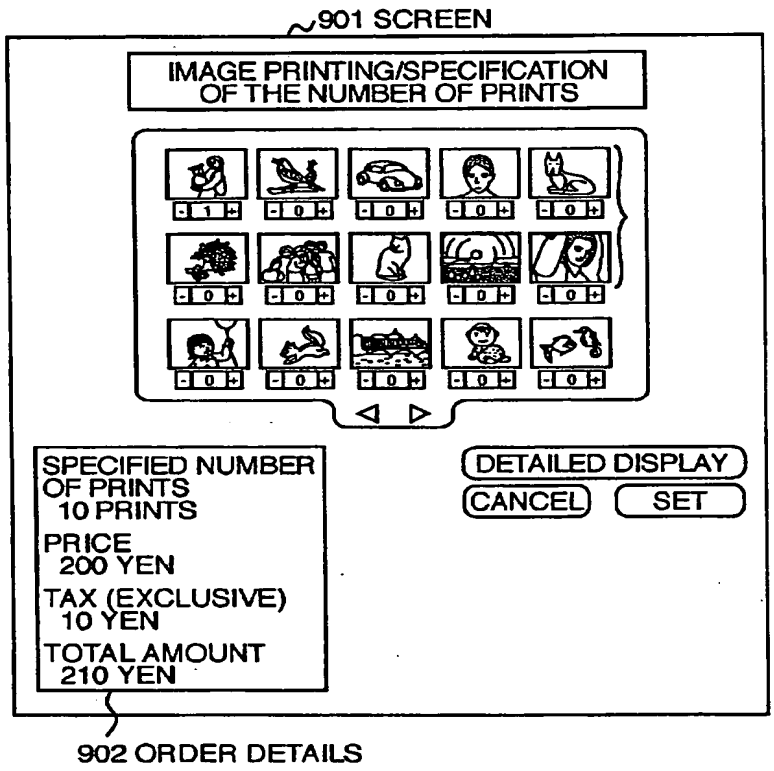
901 SCREEN
IMAGE PRINTING/SPECIFICATION OF THE NUMBER OF PRINTS
SPECIFIED NUMBER OF PRINTS 10 PRINTS
PRICE 200 YEN
TAX (EXCLUSIVE) 10 YEN
TOTAL AMOUNT 210 YEN
DETAILED DISPLAY
CANCEL
SET
902 ORDER DETAILS

FIG.10

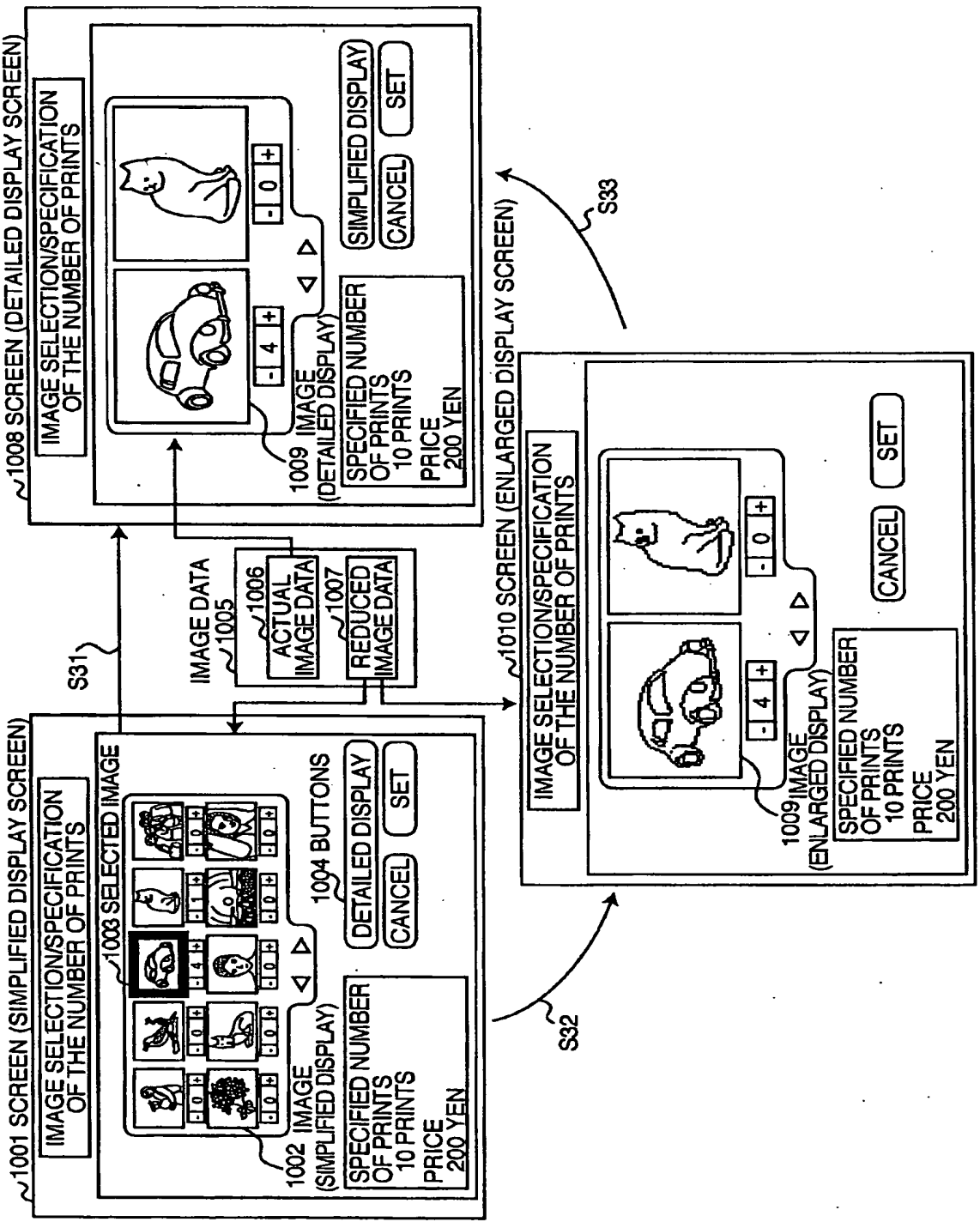
1001 SCREEN (SIMPLIFIED DISPLAY SCREEN)
IMAGE SELECTION/SPECIFICATION OF THE NUMBER OF PRINTS
1003 SELECTED IMAGE
1004 BUTTONS
DETAILED DISPLAY
CANCEL
SET
1002 IMAGE (SIMPLIFIED DISPLAY)
SPECIFIED NUMBER OF PRINTS 10 PRINTS
PRICE 200 YEN
S31
IMAGE DATA 1005
1006 ACTUAL IMAGE DATA
1007 REDUCED IMAGE DATA
1008 SCREEN (DETAILED DISPLAY SCREEN)
IMAGE SELECTION/SPECIFICATION OF THE NUMBER OF PRINTS
SIMPLIFIED DISPLAY
CANCEL
SET
1009 IMAGE (DETAILED DISPLAY)
SPECIFIED NUMBER OF PRINTS 10 PRINTS
PRICE 200 YEN
S32
S33
1010 SCREEN (ENLARGED DISPLAY SCREEN)
IMAGE SELECTION/SPECIFICATION OF THE NUMBER OF PRINTS
CANCEL
SET
1009 IMAGE (ENLARGED DISPLAY)
SPECIFIED NUMBER OF PRINTS 10 PRINTS
PRICE 200 YEN

FIG.11

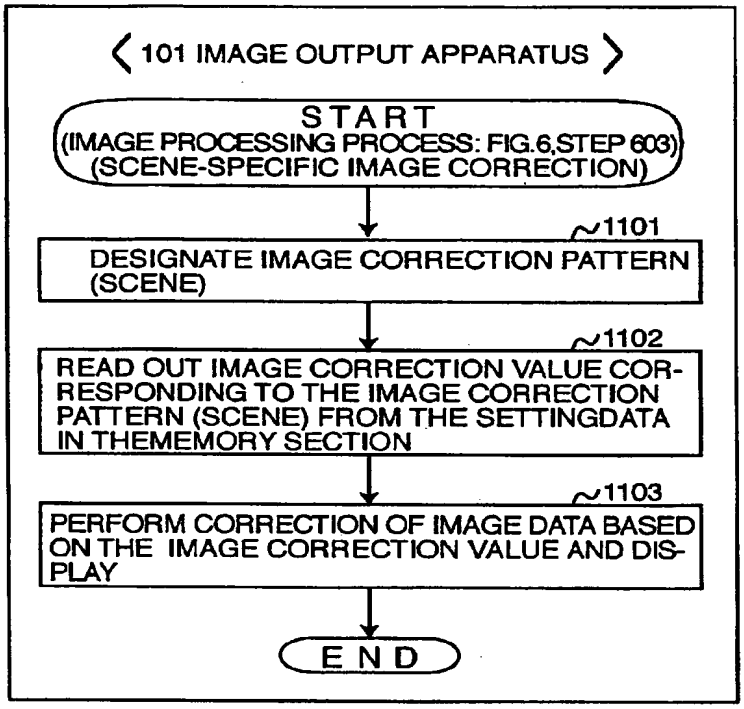
101 IMAGE OUTPUT APPARATUS
START
(IMAGE PROCESSING PROCESS: FIG.6,STEP 603)
(SCENE-SPECIFIC IMAGE CORRECTION)
1101
DESIGNATE IMAGE CORRECTION PATTERN (SCENE)
1102
READ OUT IMAGE CORRECTION VALUE CORRESPONDING TO THE IMAGE CORRECTION PATTERN (SCENE) FROM THE SETTINGDATA IN THEMEMORY SECTION
1103
PERFORM CORRECTION OF IMAGE DATA BASED ON THE IMAGE CORRECTION VALUE AND DISPLAY
END

FIG.12

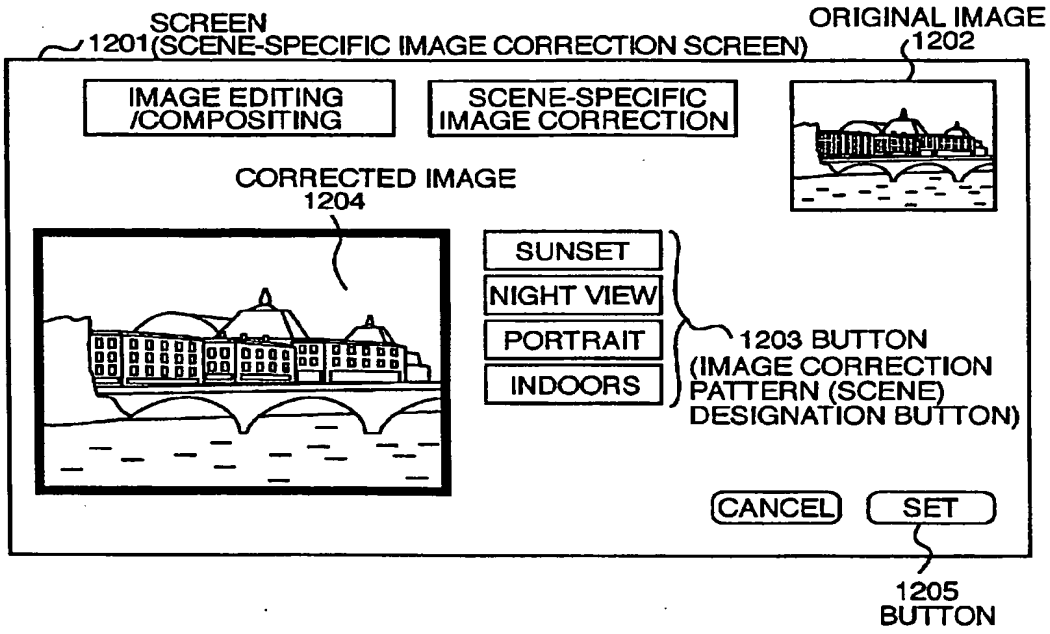
SCREEN
1201 (SCENE-SPECIFIC IMAGE CORRECTION SCREEN)
ORIGINAL IMAGE
1202
IMAGE EDITING /COMPOSITING
SCENE-SPECIFIC IMAGE CORRECTION
CORRECTED IMAGE
1204
SUNSET
NIGHT VIEW
PORTRAIT
INDOORS
1203 BUTTON
(IMAGE CORRECTION PATTERN (SCENE) DESIGNATION BUTTON)
CANCEL
SET
1205
BUTTON

FIG.13

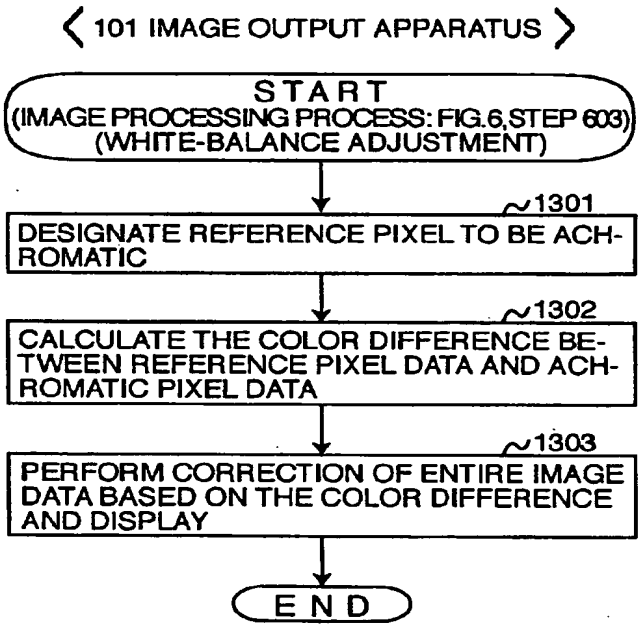
101 IMAGE OUTPUT APPARATUS
START
(IMAGE PROCESSING PROCESS: FIG.6,STEP 603)
(WHITE-BALANCE ADJUSTMENT)
1301
DESIGNATE REFERENCE PIXEL TO BE ACHROMATIC
1302
CALCULATE THE COLOR DIFFERENCE BETWEEN REFERENCE PIXEL DATA AND ACHROMATIC PIXEL DATA
1303
PERFORM CORRECTION OF ENTIRE IMAGE DATA BASED ON THE COLOR DIFFERENCE AND DISPLAY
END

FIG.14

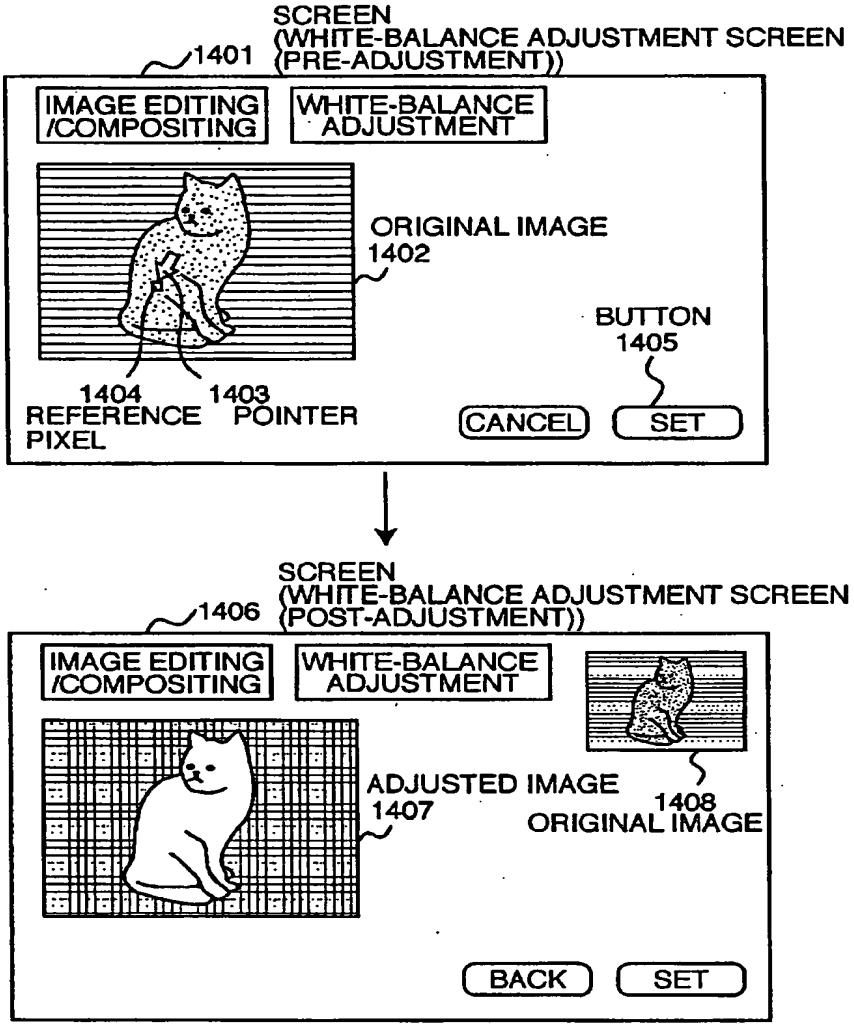
SCREEN
(WHITE-BALANCE ADJUSTMENT SCREEN
(PRE-ADJUSTMENT))
1401
IMAGE EDITING /COMPOSITING
WHITE-BALANCE ADJUSTMENT
ORIGINAL IMAGE
1402
BUTTON
1405
1404
REFERENCE PIXEL
1403
POINTER
CANCEL
SET
SCREEN
(WHITE-BALANCE ADJUSTMENT SCREEN
(POST-ADJUSTMENT))
1406
IMAGE EDITING /COMPOSITING
WHITE-BALANCE ADJUSTMENT
ADJUSTED IMAGE
1407
1408
ORIGINAL IMAGE
BACK
SET

FIG.15

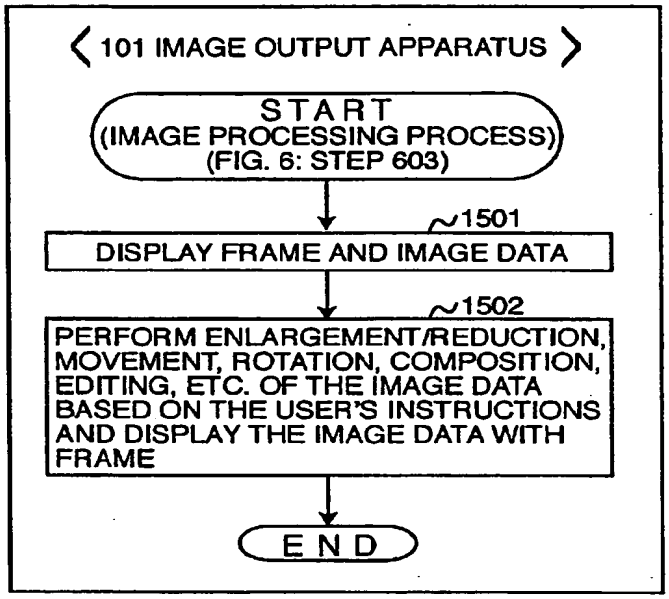
101 IMAGE OUTPUT APPARATUS
START
(IMAGE PROCESSING PROCESS)
(FIG. 6: STEP 603)
1501
DISPLAY FRAME AND IMAGE DATA
1502
PERFORM ENLARGEMENT/REDUCTION, MOVEMENT, ROTATION, COMPOSITION, EDITING, ETC. OF THE IMAGE DATA BASED ON THE USER'S INSTRUCTIONS AND DISPLAY THE IMAGE DATA WITH FRAME
END

FIG.16

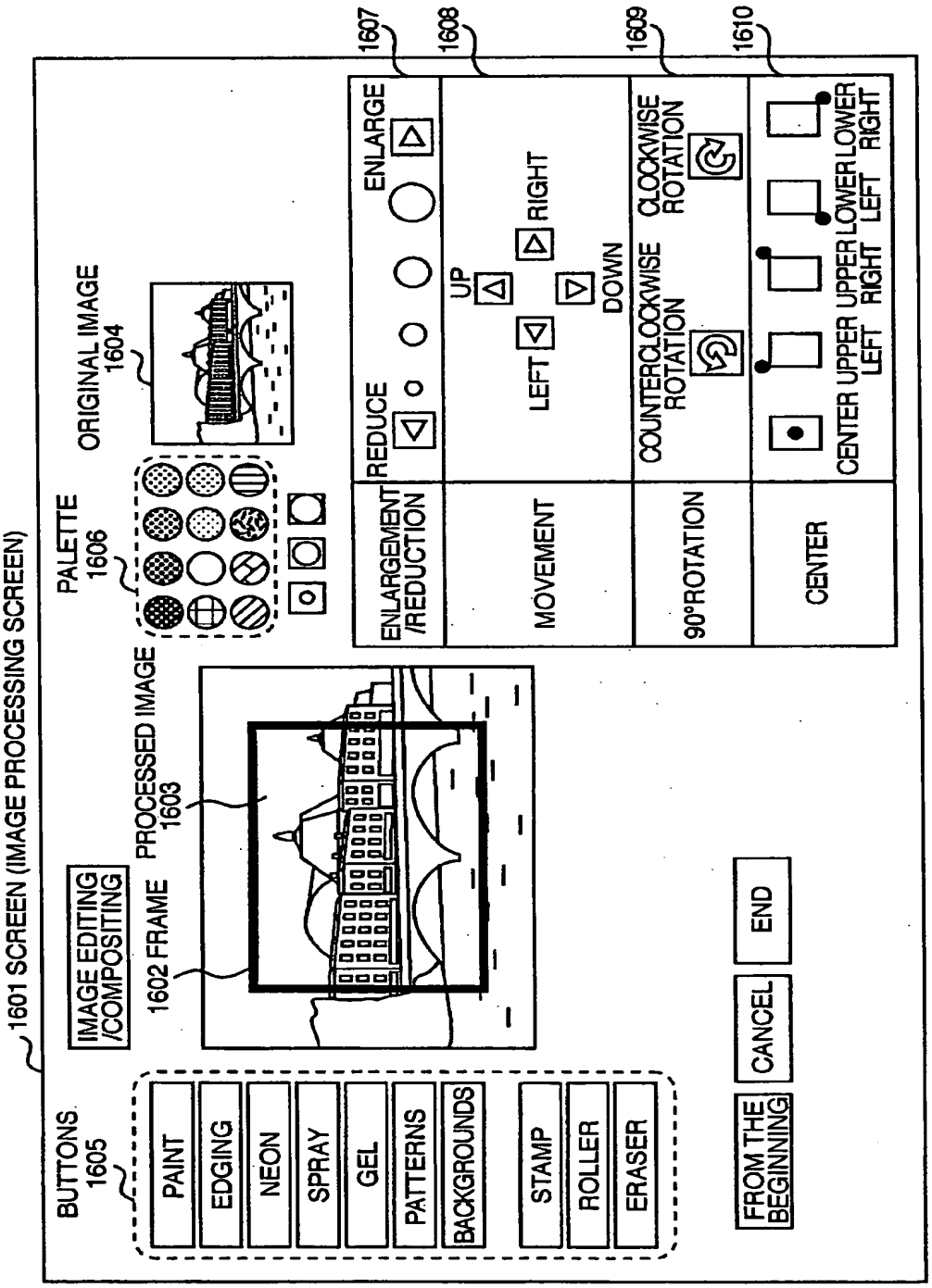
1601 SCREEN (IMAGE PROCESSING SCREEN)
IMAGE EDITING /COMPOSITING
1602 FRAME
PROCESSED IMAGE 1603
ORIGINAL IMAGE 1604
PALETTE 1606
BUTTONS 1605
PAINT
EDGING
NEON
SPRAY
GEL
PATTERNS
BACKGROUNDS
STAMP
ROLLER
ERASER
FROM THE BEGINNING
CANCEL
END
1607
1608
1609
1610
ENLARGEMENT /REDUCTION
REDUCE
ENLARGE
MOVEMENT
UP
LEFT
RIGHT
DOWN
90°ROTATION
COUNTERCLOCKWISE ROTATION
CLOCKWISE ROTATION
CENTER
CENTER
UPPER LEFT
UPPER RIGHT
LOWER LEFT
LOWER RIGHT

FIG.17

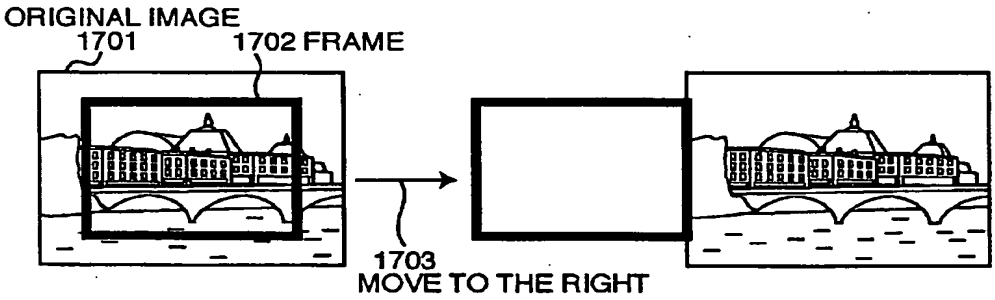
ORIGINAL IMAGE
1701
1702 FRAME
1703
MOVE TO THE RIGHT

FIG.18

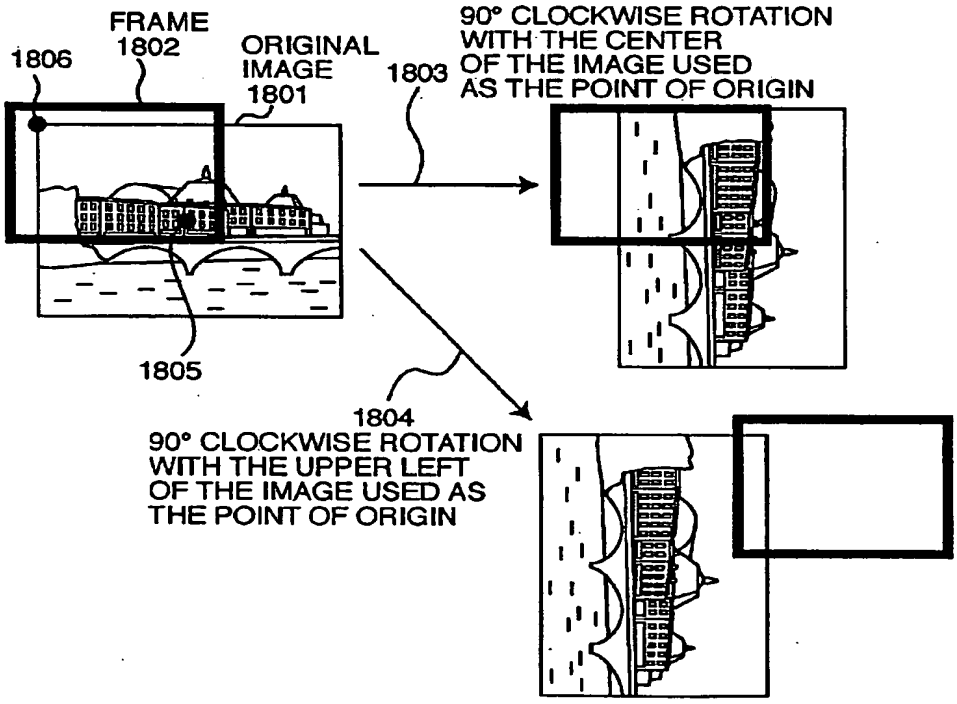
FRAME
1802
1806
ORIGINAL IMAGE
1801
1803
90° CLOCKWISE ROTATION WITH THE CENTER OF THE IMAGE USED AS THE POINT OF ORIGIN
1805
1804
90° CLOCKWISE ROTATION WITH THE UPPER LEFT OF THE IMAGE USED AS THE POINT OF ORIGIN

FIG.19

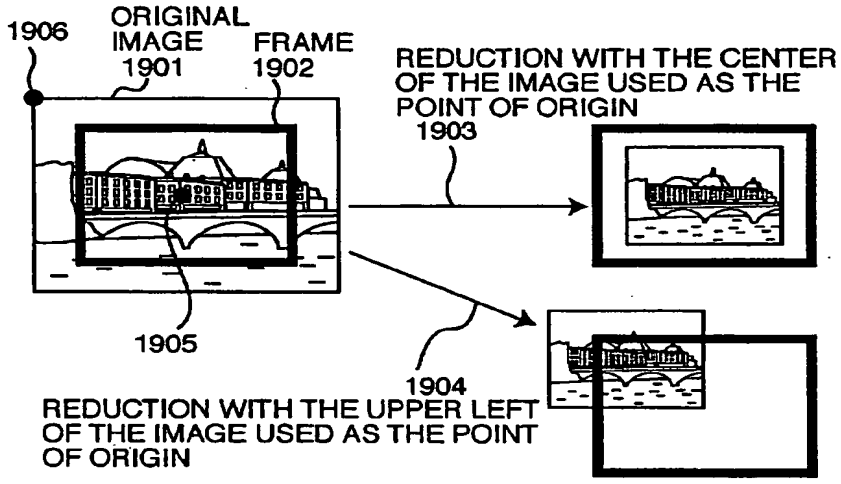
1906
ORIGINAL IMAGE 1901
FRAME 1902
REDUCTION WITH THE CENTER OF THE IMAGE USED AS THE POINT OF ORIGIN
1903
1905
1904
REDUCTION WITH THE UPPER LEFT OF THE IMAGE USED AS THE POINT OF ORIGIN

FIG.20

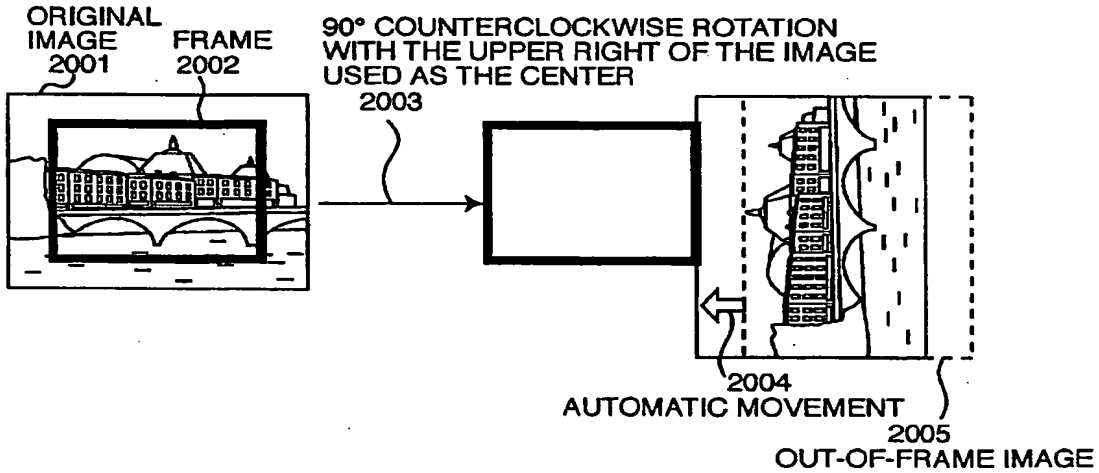
ORIGINAL IMAGE 2001
FRAME 2002
90° COUNTERCLOCKWISE ROTATION WITH THE UPPER RIGHT OF THE IMAGE USED AS THE CENTER
2003
2004
AUTOMATIC MOVEMENT
2005
OUT-OF-FRAME IMAGE

FIG.21

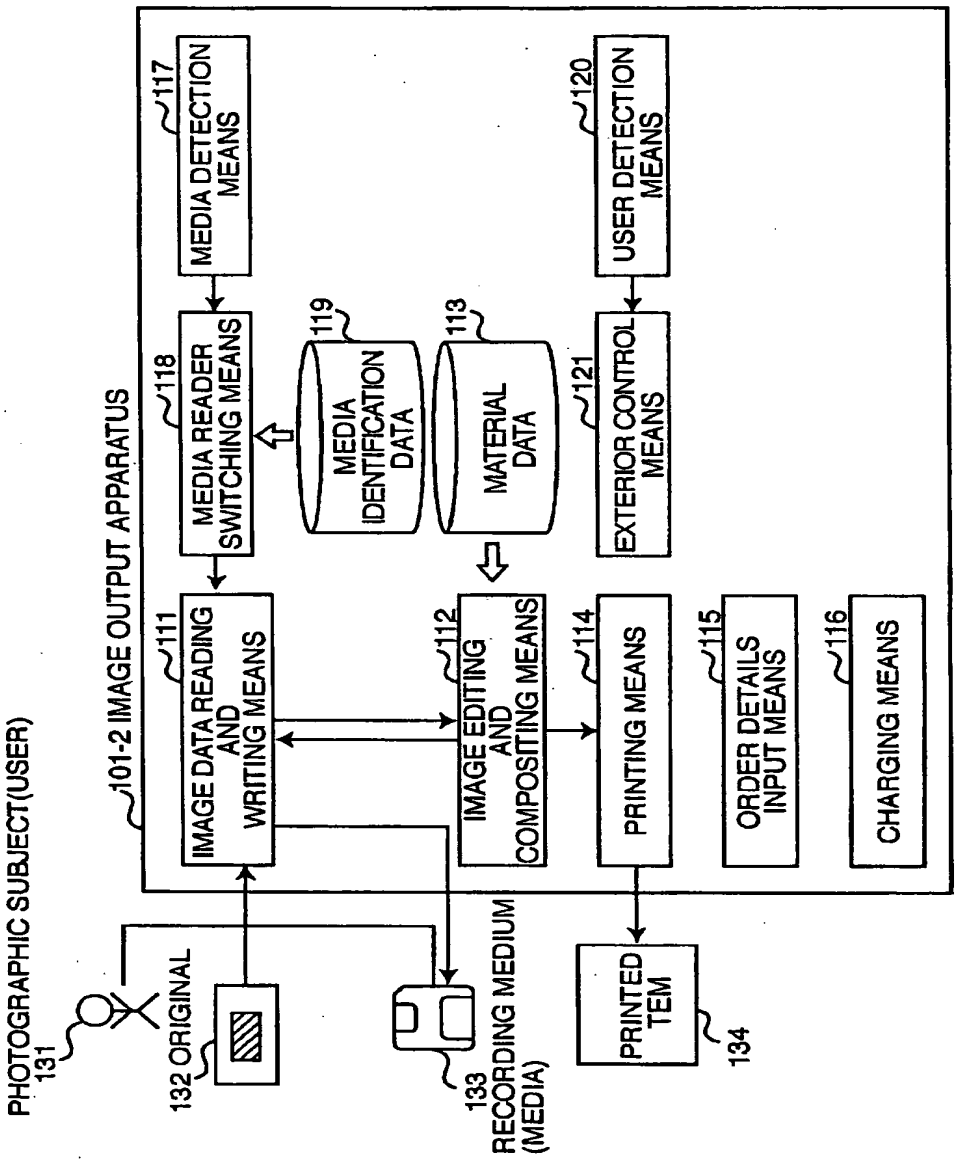
101-2 IMAGE OUTPUT APPARATUS
MEDIA DETECTION MEANS
117
USER DETECTION MEANS
120
MEDIA READER SWITCHING MEANS
118
MEDIA IDENTIFICATION DATA
119
MATERIAL DATA
113
EXTERIOR CONTROL MEANS
121
IMAGE DATA READING AND WRITING MEANS
111
IMAGE EDITING AND COMPOSITING MEANS
112
PRINTING MEANS
114
ORDER DETAILS INPUT MEANS
115
CHARGING MEANS
116
PHOTOGRAPHIC SUBJECT(USER)
131
132 ORIGINAL
133
RECORDING MEDIUM (MEDIA)
PRINTED TEM
134

FIG.22

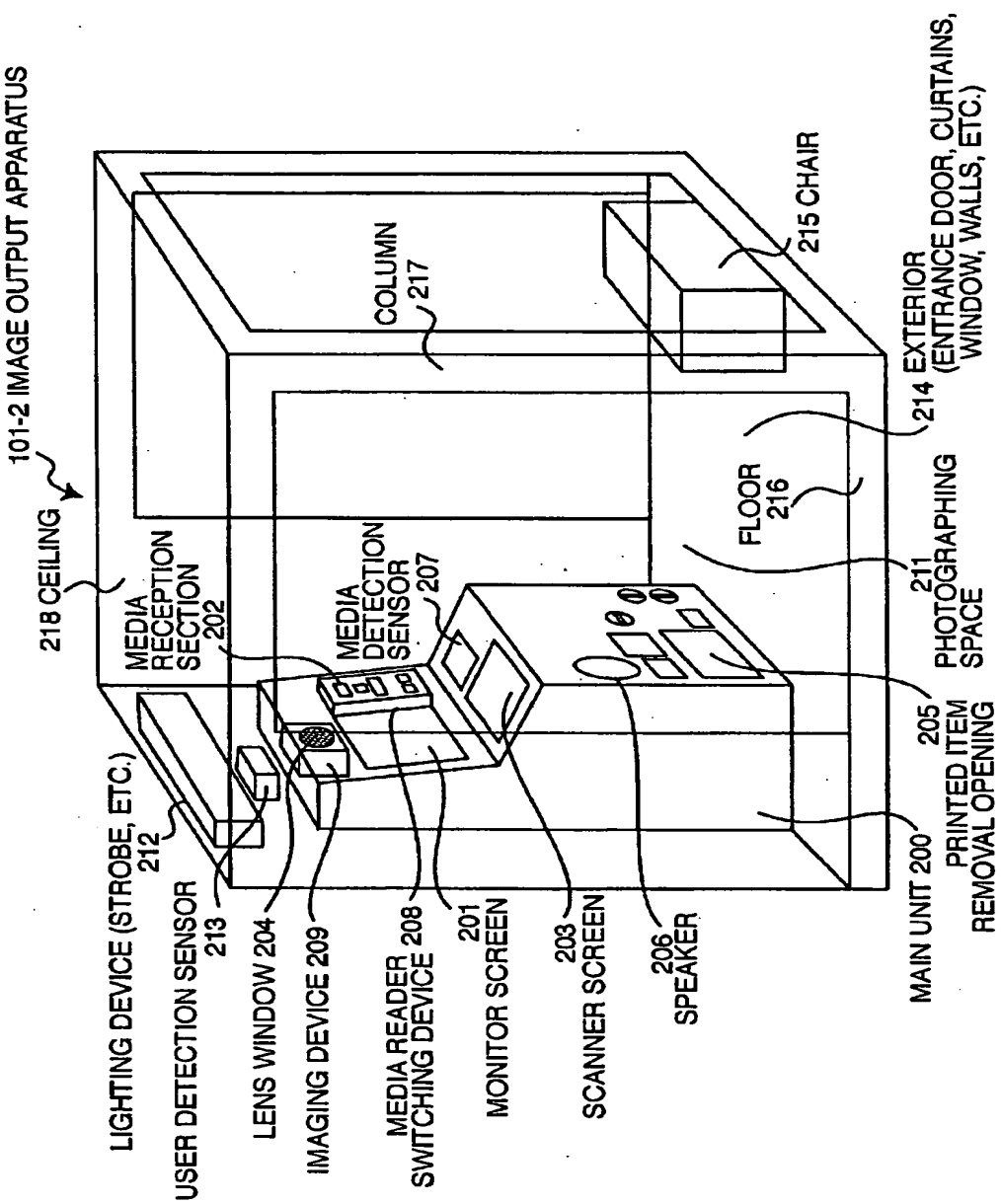
101-2 IMAGE OUTPUT APPARATUS
218 CEILING
MEDIA RECEPTION SECTION 202
MEDIA DETECTION SENSOR 207
COLUMN 217
215 CHAIR
214 EXTERIOR (ENTRANCE DOOR, CURTAINS, WINDOW, WALLS, ETC.)
FLOOR 216
211 PHOTOGRAPHING SPACE
205 PRINTED ITEM REMOVAL OPENING
MAIN UNIT 200
LIGHTING DEVICE (STROBE, ETC.) 212
USER DETECTION SENSOR 213
LENS WINDOW 204
IMAGING DEVICE 209
MEDIA READER SWITCHING DEVICE 208
MONITOR SCREEN 201
SCANNER SCREEN 203
SPEAKER 206

FIG.23

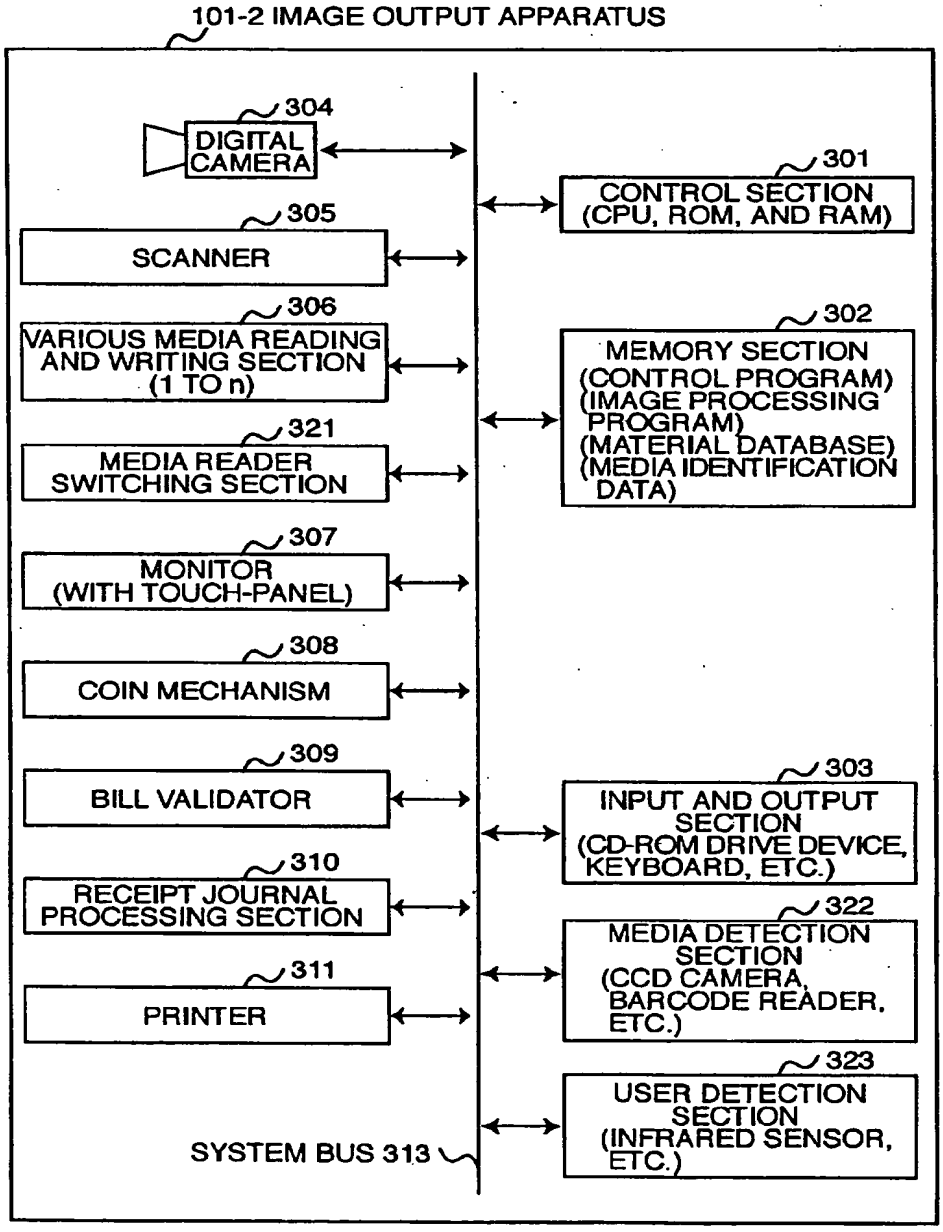
101-2 IMAGE OUTPUT APPARATUS
304
DIGITAL CAMERA
305
SCANNER
306
VARIOUS MEDIA READING AND WRITING SECTION (1 TO n)
321
MEDIA READER SWITCHING SECTION
307
MONITOR (WITH TOUCH-PANEL)
308
COIN MECHANISM
309
BILL VALIDATOR
310
RECEIPT JOURNAL PROCESSING SECTION
311
PRINTER
SYSTEM BUS 313
301
CONTROL SECTION (CPU, ROM, AND RAM)
302
MEMORY SECTION (CONTROL PROGRAM) (IMAGE PROCESSING PROGRAM) (MATERIAL DATABASE) (MEDIA IDENTIFICATION DATA)
303
INPUT AND OUTPUT SECTION (CD-ROM DRIVE DEVICE, KEYBOARD, ETC.)
322
MEDIA DETECTION SECTION (CCD CAMERA, BARCODE READER, ETC.)
323
USER DETECTION SECTION (INFRARED SENSOR, ETC.)

FIG.24

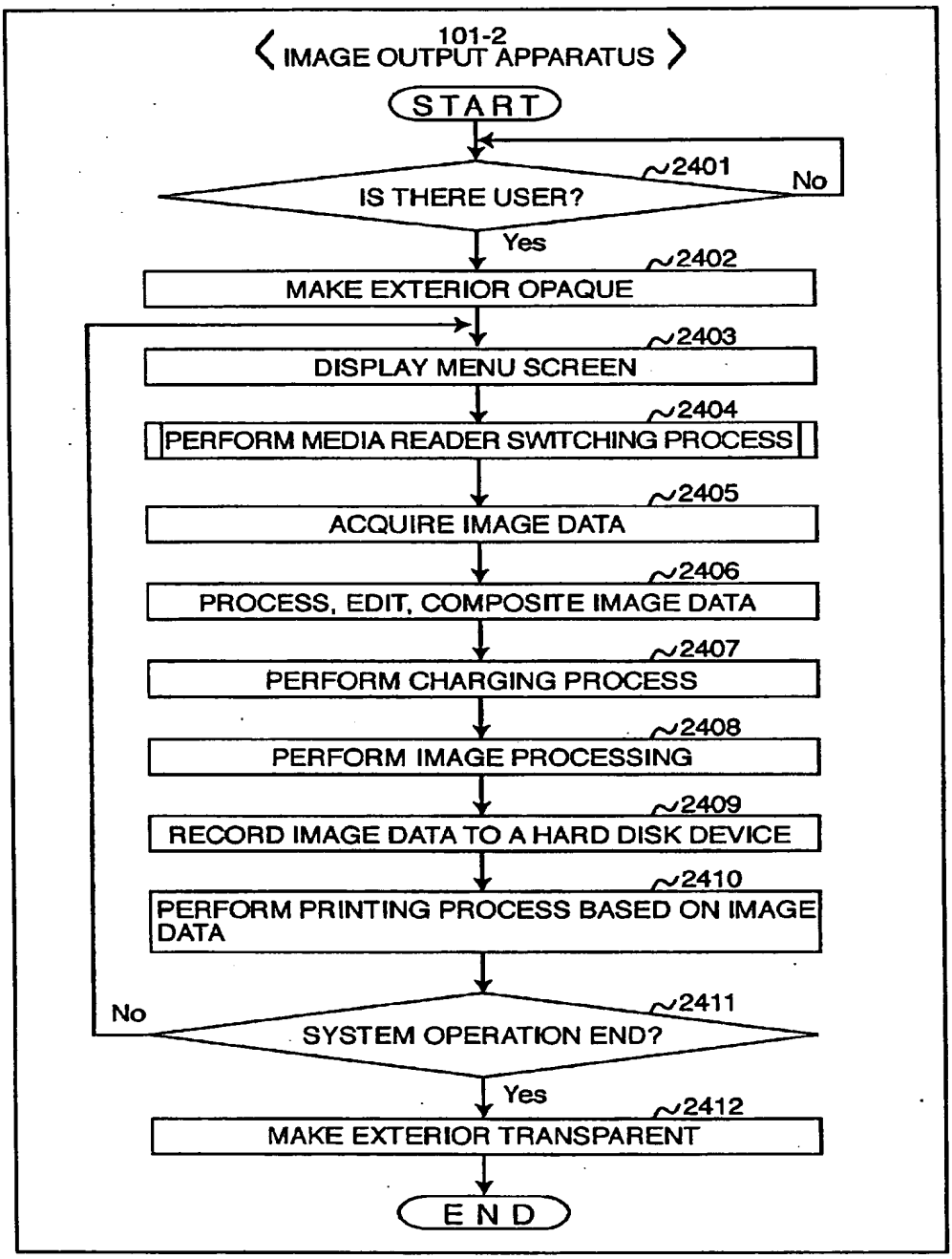
101-2
IMAGE OUTPUT APPARATUS
START
2401
IS THERE USER?
No
Yes
2402
MAKE EXTERIOR OPAQUE
2403
DISPLAY MENU SCREEN
2404
PERFORM MEDIA READER SWITCHING PROCESS
2405
ACQUIRE IMAGE DATA
2406
PROCESS, EDIT, COMPOSITE IMAGE DATA
2407
PERFORM CHARGING PROCESS
2408
PERFORM IMAGE PROCESSING
2409
RECORD IMAGE DATA TO A HARD DISK DEVICE
2410
PERFORM PRINTING PROCESS BASED ON IMAGE DATA
2411
No
SYSTEM OPERATION END?
Yes
2412
MAKE EXTERIOR TRANSPARENT
END

FIG.25

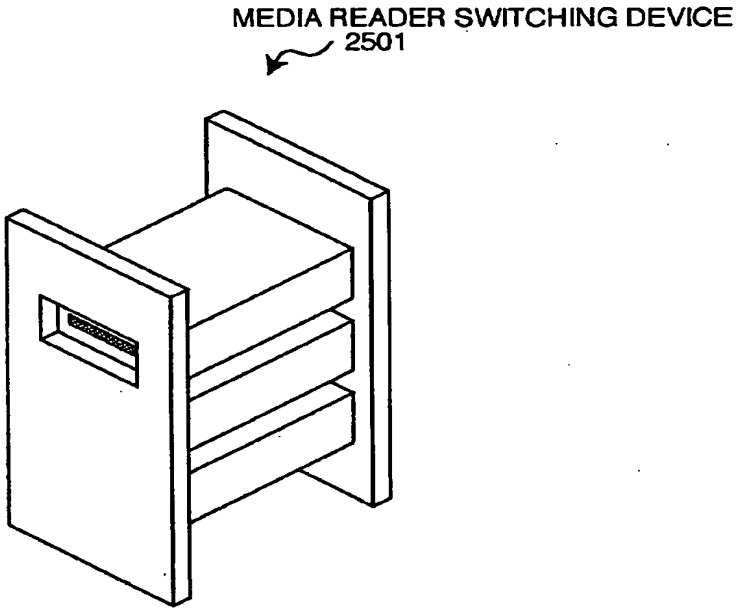
MEDIA READER SWITCHING DEVICE
2501

FIG.26

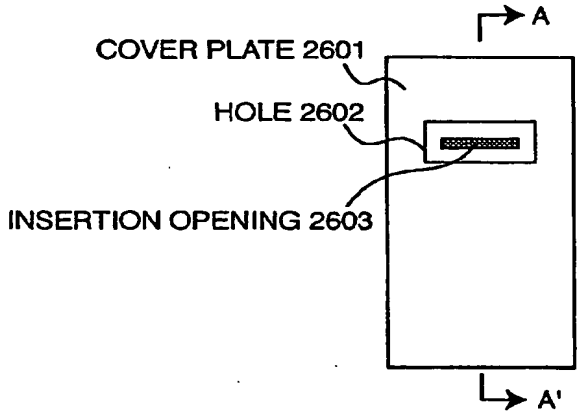
A
COVER PLATE 2601
HOLE 2602
INSERTION OPENING 2603
A'

FIG.27

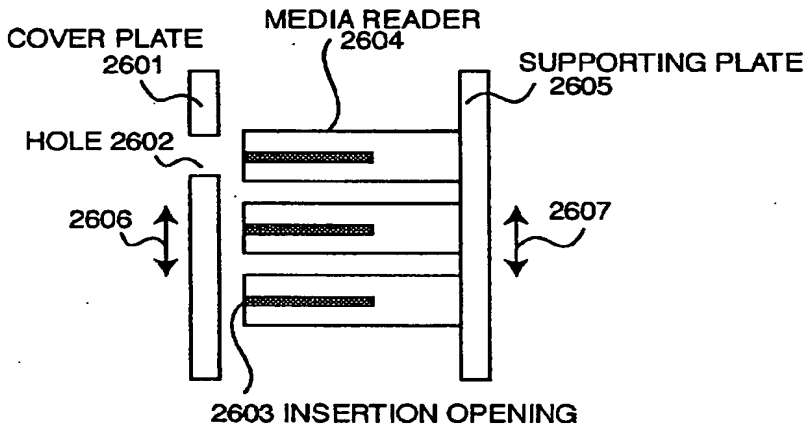
COVER PLATE
2601
MEDIA READER
2604
SUPPORTING PLATE
2605
HOLE 2602
2606
2607
2603 INSERTION OPENING

FIG.28

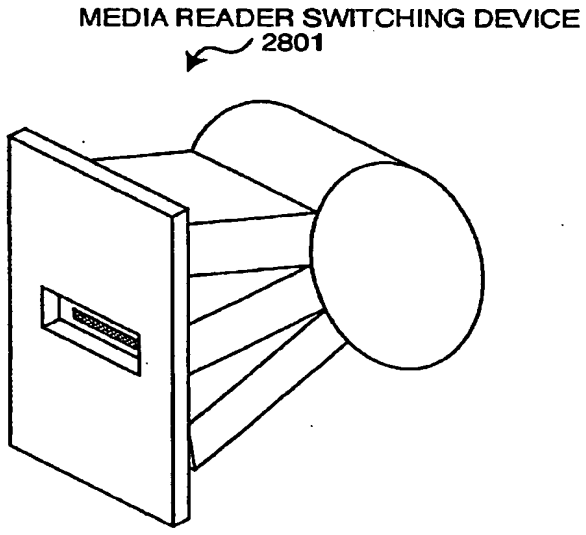
MEDIA READER SWITCHING DEVICE
2801

FIG.29

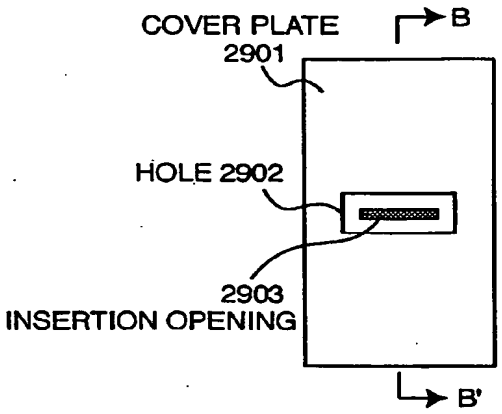
COVER PLATE
2901
B
HOLE 2902
2903
INSERTION OPENING
B'

FIG.30

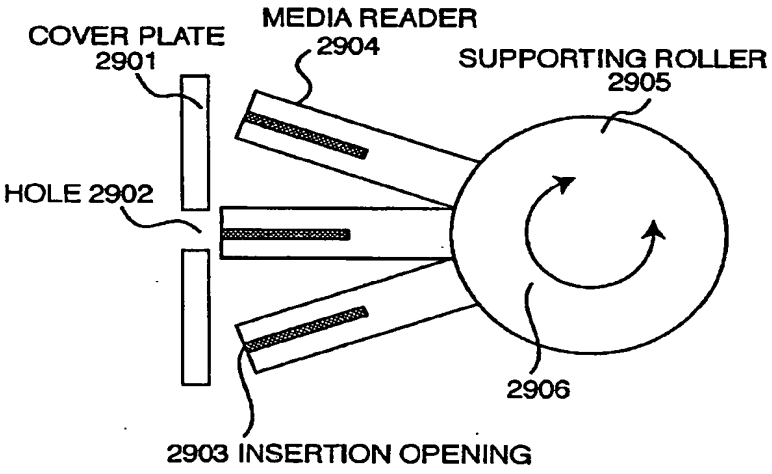
COVER PLATE
2901
MEDIA READER
2904
SUPPORTING ROLLER
2905
HOLE 2902
2906
2903 INSERTION OPENING

FIG.31

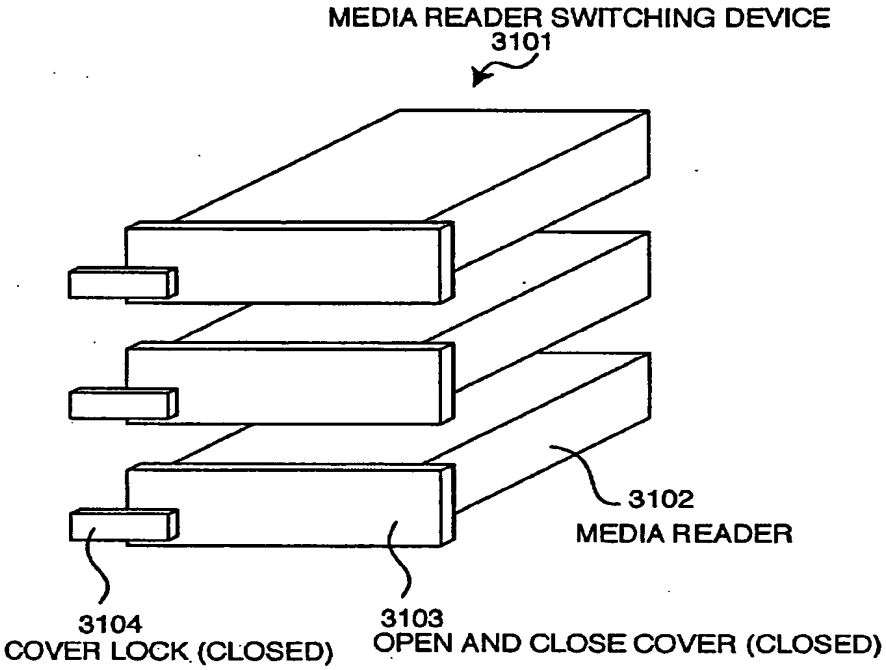
MEDIA READER SWITCHING DEVICE
3101
3102
MEDIA READER
3104
COVER LOCK (CLOSED)
3103
OPEN AND CLOSE COVER (CLOSED)

FIG.32

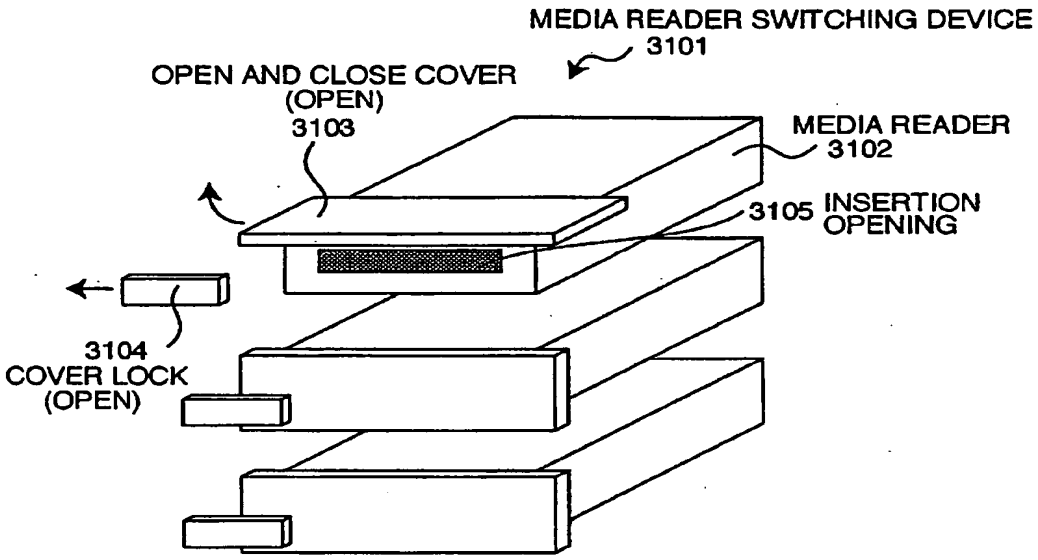
MEDIA READER SWITCHING DEVICE
3101
OPEN AND CLOSE COVER
(OPEN)
3103
MEDIA READER
3102
3105 INSERTION
OPENING
3104
COVER LOCK
(OPEN)

FIG.33

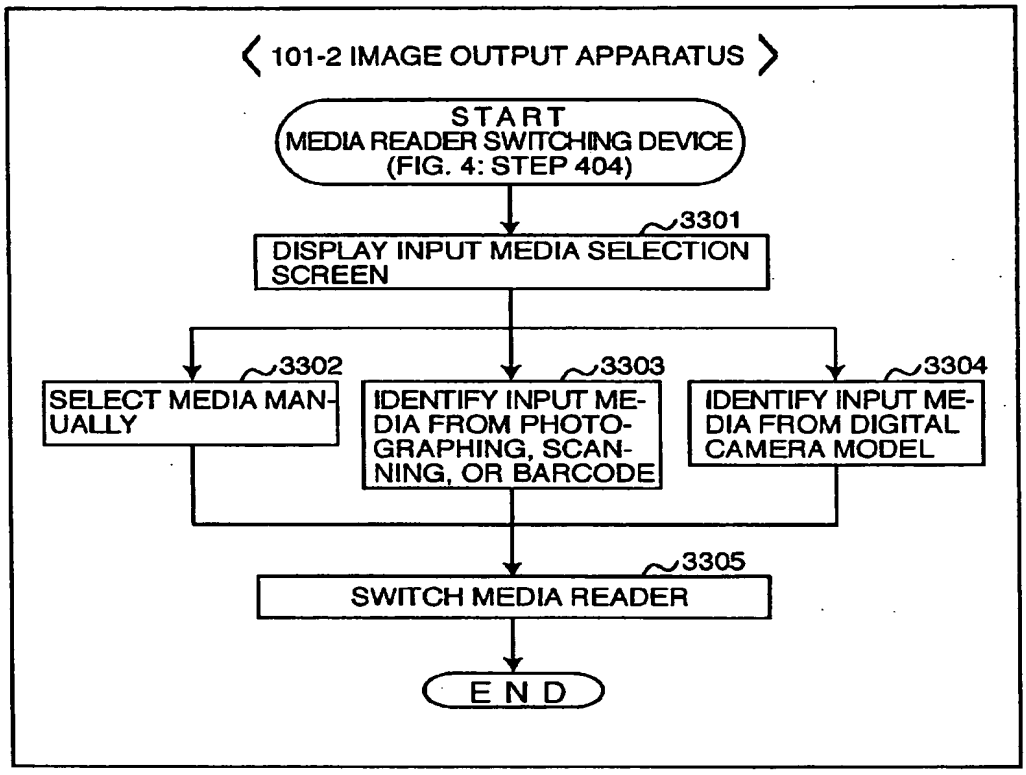
101-2 IMAGE OUTPUT APPARATUS
START
MEDIA READER SWITCHING DEVICE
(FIG. 4: STEP 404)
3301
DISPLAY INPUT MEDIA SELECTION SCREEN
3302
SELECT MEDIA MANUALLY
3303
IDENTIFY INPUT MEDIA FROM PHOTOGRAPHING, SCANNING, OR BARCODE
3304
IDENTIFY INPUT MEDIA FROM DIGITAL CAMERA MODEL
3305
SWITCH MEDIA READER
END

FIG.34

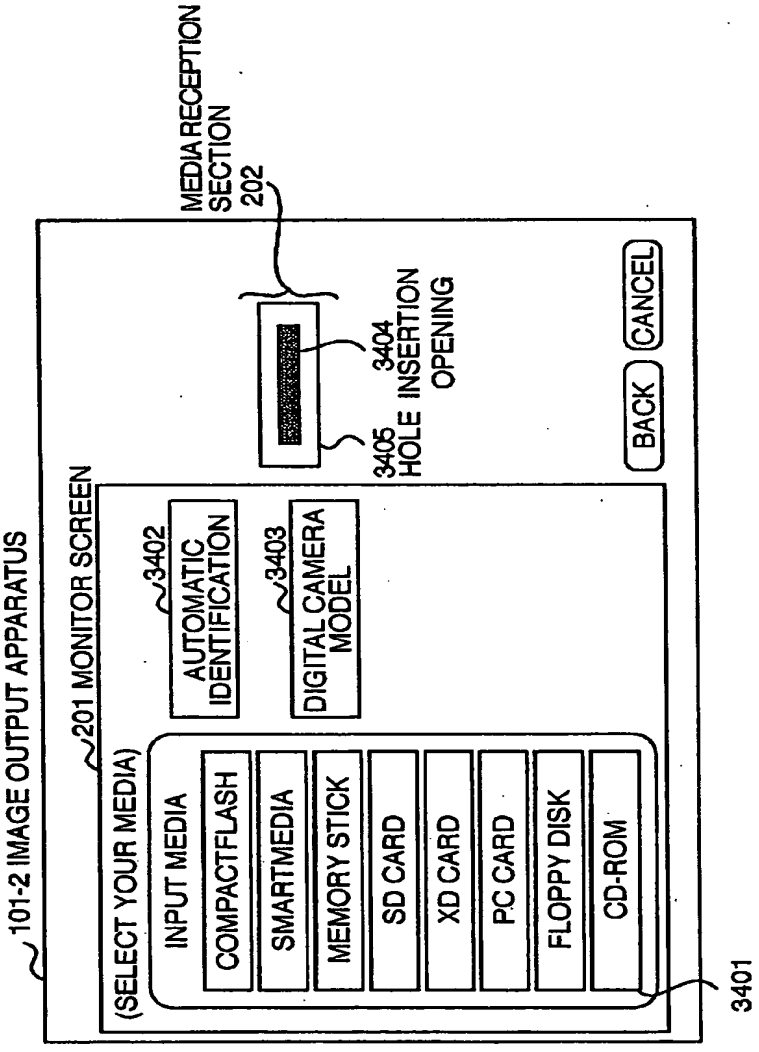
101-2 IMAGE OUTPUT APPARATUS
201 MONITOR SCREEN
MEDIA RECEPTION SECTION 202
3404 INSERTION OPENING
3405 HOLE
BACK
CANCEL
(SELECT YOUR MEDIA)
INPUT MEDIA
COMPACTFLASH
SMARTMEDIA
MEMORY STICK
SD CARD
XD CARD
PC CARD
FLOPPY DISK
CD-ROM
3401
3402 AUTOMATIC IDENTIFICATION
3403 DIGITAL CAMERA MODEL

FIG.35

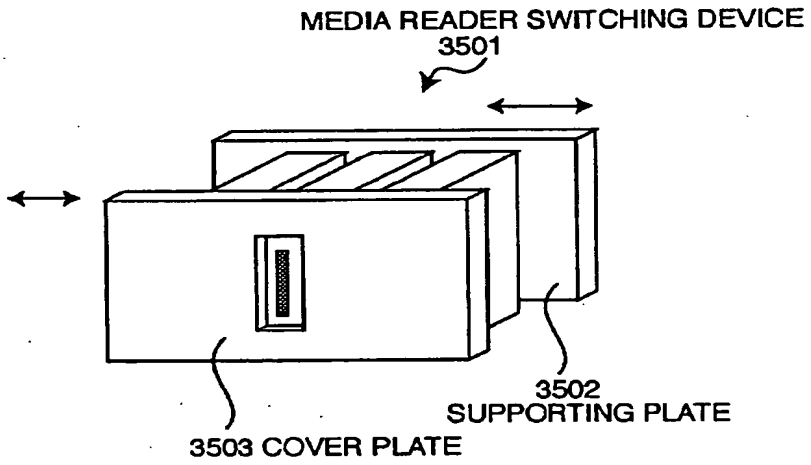
MEDIA READER SWITCHING DEVICE
3501
3502
SUPPORTING PLATE
3503 COVER PLATE

FIG.36

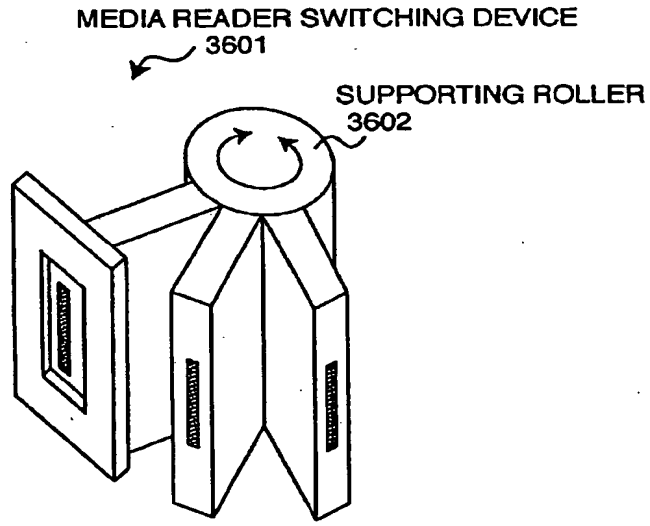
MEDIA READER SWITCHING DEVICE
3601
SUPPORTING ROLLER
3602

FIG.37

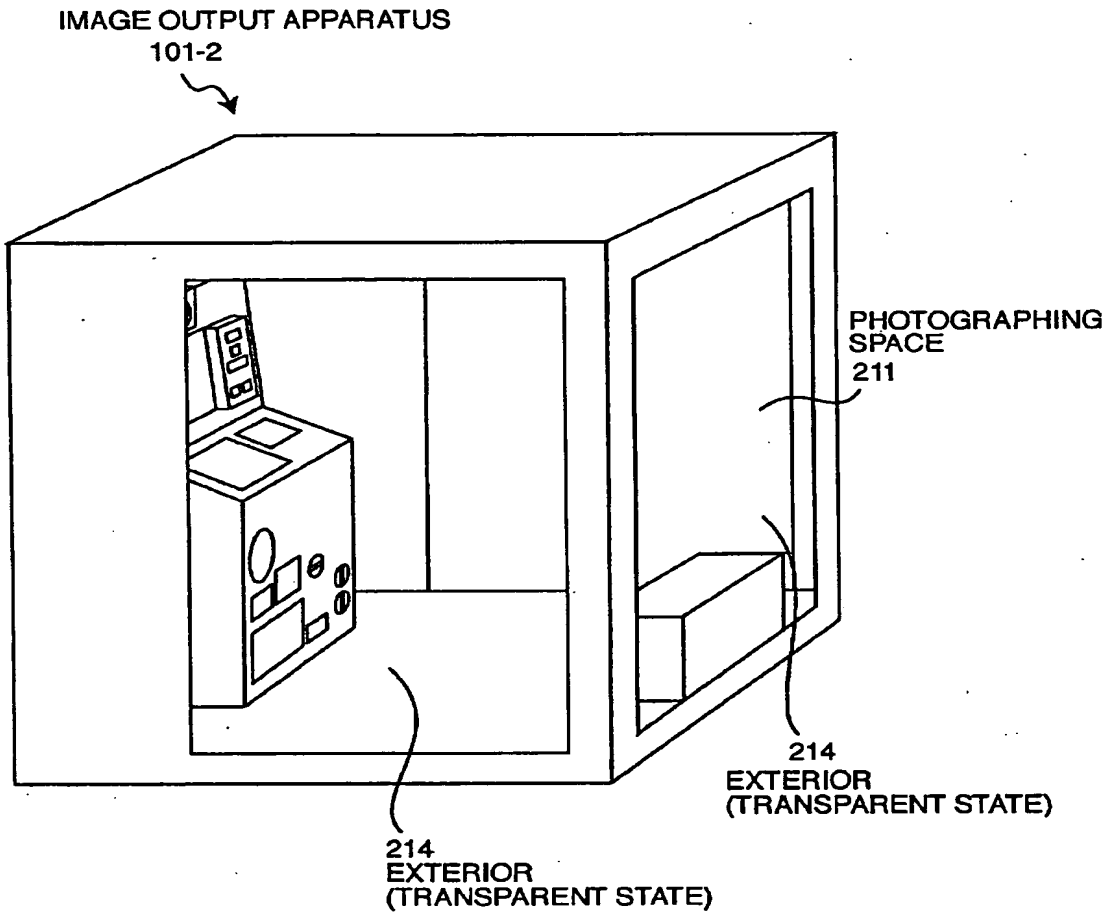
IMAGE OUTPUT APPARATUS
101-2
PHOTOGRAPHING SPACE
211
214
EXTERIOR
(TRANSPARENT STATE)
214
EXTERIOR
(TRANSPARENT STATE)

FIG.38

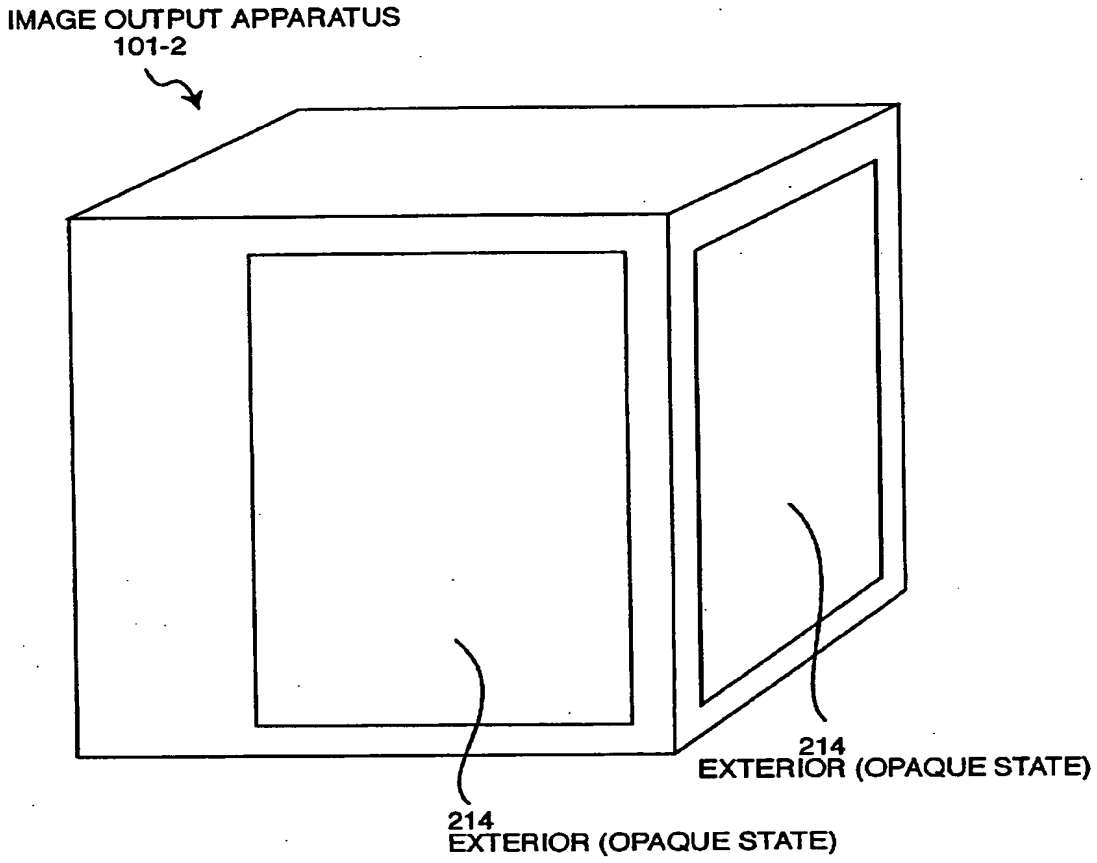
IMAGE OUTPUT APPARATUS
101-2
214
EXTERIOR (OPAQUE STATE)
214
EXTERIOR (OPAQUE STATE)